

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

SINGULAR COMPUTING LLC,)
Plaintiff,)
v.) Civil Action
GOOGLE LLC,) No. 1:19-cv-12551-FDS
Defendant.) Pages 1 to 33

BEFORE THE HONORABLE CHIEF JUDGE DENNIS F. SAYLOR, IV
UNITED STATES DISTRICT JUDGE

MOTION HEARING
Via Videoconference

May 24, 2023
2:01 p.m.

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1 P R O C E E D I N G S

2 THE COURT: Court is now in session in the matter of
3 Singular Computing LLC versus Google LLC, Civil Action number
4 19-12551.

02:02 5 Participants are reminded that photographing,
6 recording, and rebroadcasting of this hearing is prohibited and
7 may result in sanctions.

8 Will counsel please identify themselves for the
9 record, starting with the plaintiff.

02:02 10 MR. SEEVE: This is Brian Seeve representing plaintiff
11 Singular Computing LLC.

12 THE COURT: Good afternoon.

13 MR. SEEVE: And with me is Kerry Timbers and Kevin
14 Gannon, as well as, I think, Adam Doherty, also representing
02:02 15 Singular Computing LLC.

16 THE COURT: All right. Good afternoon.

17 MR. VAN NEST: Good afternoon, Your Honor. Bob Van
18 Nest for defendant Google. I am here with Asim Bhansali and
19 Michael Kwun from Kwun Bhansali, and Nathan Speed from Wolf
02:02 20 Greenfield.

21 Good afternoon.

22 THE COURT: Good afternoon.

23 All right. This is a hearing on Google's motion to
24 strike the expert report of Sunil Khatri. Who's taking the
02:02 25 lead for Google?

1 MR. VAN NEST: That's going to be Mr. Kwun, Your Honor.

2 THE COURT: Okay.

3 MR. VAN NEST: Michael.

4 MR. KWUN: Your Honor, I would like to discuss really
02:03 5 just two points today.

6 And first, I would like to walk through the evidence
7 that shows that the infringement theory that is in Dr. Khatri's
8 report is a new infringement theory and one that wasn't
9 previously disclosed by Singular.

02:03 10 And then the second point I would like to discuss is
11 the legal standard that applies to this motion and basically
12 that this motion is a Rule 16 motion and not a Rule 37 motion.

13 But starting with the new infringement theory,
14 Singular's argument, if I understand it, is that it has always
02:03 15 alleged that infringement -- that Google's TPUs infringe
16 because they use bfloat16s, 16 bits, instead of 32 bits, FP32s.
17 And from that disclosure it says we should have known that it
18 was accusing rounding circuits and that they didn't even have
19 to tell us where those rounding circuits were, that we should
02:04 20 have been able to figure that out because we know our own
21 product, where our rounding circuits are. Wherever it is, it's
22 accused.

23 But Local Rule 16.6(d) requires that Singular disclose
24 in its infringement contentions, with as much specificity as
02:04 25 possible, where and how each element of the claims is met.

1 So --

2 THE COURT: If I could interject?

3 MR. KWUN: Yes.

4 THE COURT: How are you supposed to know? A chip is
02:04 5 not like a, I don't know, a widget you can just pick up and
6 look at and say, ah, here's how it works. How are they
7 supposed to know without the source code precisely where these
8 functions are being performed? I'm talking about the beginning
9 of a lawsuit now.

02:04 10 MR. KWUN: At the beginning of a lawsuit, what the
11 local rules say is that they have to rely on things such as
12 public information, and that's what they did. And the public
13 information they relied on wasn't 100 percent accurate. It
14 wasn't meant to disclose all of these details so precisely.
02:05 15 And so we don't fault them for having gotten it wrong then.

16 However, we went through discovery. We produced
17 technical documents, and at a bare minimum, they took the
18 deposition of our engineers, who in 2021 disclosed in testimony
19 that the rounding circuits were in the VPU. And a matter of
02:05 20 fact, the questions that they were asked showed that Singular
21 knew that the rounding circuits were in the VPU. So at that
22 point they then could move for leave to amend their
23 infringement contentions under 16.6(d), but they didn't do
24 that. And they did move to supplement eventually to add the
02:05 25 source code citations, and I'll get to that in moment.

1 First, I would like to walk through what happened
2 without the source code contentions. And Your Honor, I'm going
3 to be referring to the slides that we provided you with. And
4 the first slide is just the cover slide, so I'm going to start
02:06 5 with slide 2. And slide 2 comes from Singular's supplemental
6 infringement contentions. It's for the '156 patent, but the
7 same disclosure is in their contentions for both patents. And
8 a matter of fact, the same disclosures are also in their
9 preliminary contentions.

02:06 10 And we've circled and kind of blown up three instances
11 on there, just to show you what this disclosure was talking
12 about. It's only talking about the MXU. And, again, in their
13 preliminary contentions, maybe they didn't know any better, but
14 by the time of their supplemental contentions, which were in
02:06 15 August of 2022, they had known for over a year that the VPU was
16 where the rounding circuits were, and they knew that the VPU
17 wasn't in the MXU either.

18 Then, if you look at slide 3, this is from
19 Dr. Khatri's expert report, and you can see in his expert
02:07 20 report he says that the LPHDR execution units are included
21 within the VPU/MXU.

22 THE COURT: Are you trying to show me slides now?
23 Because I'm not seeing them. Or is this -- are you talking
24 about what's in the record?

02:07 25 MR. KWUN: These were slides that we had emailed.

1 THE COURT: Are you trying to show them on the screen?

2 MR. KWUN: I am not trying to show them on the screen.

3 THE COURT: All right. Go ahead.

4 MR. KWUN: So let me give you a little more context,
02:07 5 then, so that you can see exactly what I'm talking about.

6 From slide 2, that's from their preliminary
7 infringement contentions, and that's docket 410-3, and it's on
8 page 6. And if you look at it, it just repeatedly, all it's
9 talking about is the MXU. Dr. Khatri's infringement report at
02:07 10 paragraph 72 says that the LPHDR execution units are included
11 within the VPU/MXU. So that is a -- that is a new theory that
12 wasn't disclosed in the disclosure of the MXU.

13 And then you can also see it a second way. So if you
14 go back to their preliminary contentions, so again docket
02:08 15 410-3, and this time you look at page 9, you can see their
16 discussion of the required error for the claims, and then in
17 their discussion of the required error, they say, quote, "For
18 each of the possible valid inputs to the multiplication
19 operation performed by the multipliers within the MXU,"
02:08 20 unquote, that they did a calculation of the error. So they're
21 focusing on the inputs to the MXU.

22 And then if you look at Dr. Khatri's report, and this
23 is our slide 5, but Dr. Khatri's report at paragraph 140, he
24 says that the LPHDR execution unit comprises the
02:09 25 precision-reducer circuits that convert each of the FP32 input

1 signals. So from that we know he's talking about inputs that
2 are in the VPU because they're inputs to the rounding circuits
3 which he calls precision-reducer circuits.

4 And this difference -- you know, they say that they
02:09 5 disclosed this in their supplemental contentions in the source
6 code citations, but the source code citation didn't tell us,
7 oh, by the way, the rounding circuits are part of the EU now.
8 They didn't change their disclosure that referred to the MXU
9 again and again and again, and their source code citation for
02:09 10 the execution unit cited 235 pages of source code without any
11 explanation at all. Instead, all it said was see also 232
12 pages. And now they say, if you look at one of those pages and
13 you look at a particular part of one of those pages, well,
14 then, that disclosed that rounding circuits were involved. But
02:10 15 frankly, even if they had told us, oh, by the way, rounding
16 circuits have something to do with our infringement theory,
17 that doesn't tell us that the rounding circuits are part of the
18 execution unit. It could have been that the rounding circuits
19 were intended as evidence that the multipliers in the MXU
02:10 20 operate at bfloat16 precision.

21 So without telling us what was going on in those
22 infringement contentions, they really didn't disclose to us
23 that they were now relying on the VPU. And a matter of fact,
24 when they moved for leave to supplement their infringement
02:10 25 contentions -- and they chose the word "supplement" and not

1 "amend" as in a new theory -- in their motion, this is at
2 docket 355-1, they three times told the Court and Google that
3 they were not seeking to add a new theory of infringement.

4 On page 1 they say Singular is not seeking to add any
02:11 5 new theory of infringement.

6 At page 4, they say Singular does not seek to add any
7 new infringement theories.

8 And at page 5, in case we hadn't already figured it
9 out, they say Singular's infringement theories have not
02:11 10 changed.

11 So if indeed those source code citations were intended
12 to put us on notice that they had a new infringement theory,
13 they have a problem because they actively told us that there
14 was no new infringement theory.

02:11 15 So from all of that, I think it's pretty clear that
16 there is a new infringement theory here. And then, if you ask
17 yourself, does this new infringement theory matter, in their
18 surreply they say the location is irrelevant. So first of all,
19 under the local rules, location is anything but irrelevant
02:11 20 because they're required to tell us about it.

21 THE COURT: Let me stop. You are breezing right by to
22 what I think may be the most important point. I'm not sure I
23 understand why the location is relevant. In other words, the
24 claim limitation, as I understand it, is an execution unit.
02:12 25 I'm sure I'm going to get the acronym wrong, but LPHDR.

1 MR. KWUN: Yes, Your Honor.

2 THE COURT: Does it really matter whether at the end
3 of the day Google is doing that in one step or two or five
4 if -- and whether the word or the term "execution unit" applies
02:12 5 to that collectively or individually? I'm just not sure I
6 understand why the geography, if that's the right word, on the
7 chip matters. I'm not sure I understand that.

8 MR. KWUN: Yes, Your Honor. The reason it matters is,
9 first of all, because it's required by the local rules.

02:12 10 But second of all, because when we go to trial, they
11 need to put up evidence to a jury and tell the jury where the
12 execution unit is. And throughout this case, until we received
13 their expert report, they were telling us we are going to tell
14 the jury that the execution unit can be found in the MXU. And
02:12 15 only at the time that they served Dr. Khatri's expert report
16 did we learn that, no, they're not actually only going to point
17 to the MXU, they're going to bring in evidence of another part
18 of the chip, the VPU. So that's why it matters.

19 The point of the patent local rules is to flush out
02:13 20 that disclosure as soon as possible, and then -- and the
21 reason --

22 THE COURT: It still has to matter. If I understand
23 this, and I'm sure I'm the least informed person on this call.
24 But, you know, you have these two functions. You have the
02:13 25 rounding function, if that's the right word, and you have the

1 multiplication function; right? And whether those occur in one
2 black box or two black boxes, isn't the whole idea of the
3 execution unit is you're doing both things, and that's -- and
4 so never mind what the local rules say; in other words, you
02:13 5 could be infringing a patent for, I don't know, the light bulb,
6 and it doesn't matter whether the light bulb is in the ceiling
7 or in a lamp, it's still a light bulb. It doesn't matter where
8 the light bulb is located, and that's what I'm struggling with,
9 the idea here. Why does it matter that in fact Google is using
02:14 10 two things, a VPU and an MXU, to perform these two functions
11 instead of both functions being performed in one unit?

12 MR. KWUN: But, Your Honor, if they had disclosed the
13 VPU and MXU theory, then we could have an argument at trial and
14 let the jury decide or maybe a further claim construction
02:14 15 decide, let something decide, whether or not having that
16 function performed in two places falls within the scope of the
17 claim limitation.

18 THE COURT: Can't you still make that argument?

19 MR. KWUN: Well, we could. We could make that
02:14 20 argument if you allowed this argument to go forward, but it
21 shouldn't go forward because they had to disclose what their
22 infringement theory was. So before you get to the question of
23 whether or not VPU plus MXU can infringe, they first have to
24 disclose that that in fact is their theory, and they didn't
02:15 25 disclose it until they served Dr. Khatri's expert report. And

1 as a matter of fact, after they knew in August of 2022, long
2 after they knew that they were -- that the VPU had the rounding
3 circuit, they told us that they were not asserting a new
4 infringement theory.

02:15 5 So the -- the second point I want to get to in today's
6 argument is the legal standard that applies here. And this is
7 a motion that we brought under Rule 16, and particularly under
8 the Local Rule 16.6(d). And that makes this a Rule 16 motion,
9 not a Rule 37 motion, and a Rule 16 motion whether or not there
02:15 10 is good cause. So in this case, good cause for them to be able
11 to amend their contentions.

12 In their surreply, at page 4 of their surreply,
13 Singular says that the applicable law for this motion would be
14 regional circuit law. So first of all, that's incorrect. If
02:16 15 you look at *O2 Micro*, which we cited in our opening brief, the
16 Federal Circuit has held that it will apply Federal Circuit
17 law, the patent local rules, like Local Rule 16.6, that are,
18 quote, "Likely to directly affect the substantive patent law
19 theories that may be presented at trial." That's at 467 F.3d
02:16 20 1355, pincite 1364. And in *O2 Micro*, the Federal Circuit
21 affirmed a refusal to allow an amended infringement theory
22 because the patentee had delayed by close to three months
23 before moving for leave to amend its contentions.

24 Here, Singular knew about the issue in 2021 when it
02:17 25 took the depositions of our witnesses and didn't move for leave

1 to amend to add the VPU plus MXU theory ever. And even when it
2 did move to supplement, that was well over a year later. As a
3 matter of fact, in August of '22 when it moved to supplement
4 its contentions, that was one day shy of three months where the
02:17 5 stay had lifted in this case. So it's -- the facts are
6 remarkably similar to *O2 Micro*, and because *O2 Micro* is Federal
7 Circuit law, that is the standard that applies.

8 But even if it was First Circuit law, frankly, the
9 answer is no different. If you look at the *O'Connell* case, the
02:17 10 First Circuit says that for a good cause standard the focus is
11 going to be on the diligence of the party seeking to amend and
12 less so on prejudice to the other party.

13 And then if you look at the *Rosario-Diaz* case at 140
14 F.3d 312, the First Circuit says that as a matter of fact, if
02:18 15 you never move for leave to show good cause, that cuts off any
16 ability to argue prejudice at all. So Federal Circuit law
17 applies, and Federal Circuit law says that even a three-month
18 delay is too long. But even if First Circuit law applied, the
19 answer would be the same.

02:18 20 And the cases that they cite, that Singular cites, all
21 are Rule 37 cases, and Rule 37 applies to a failure to follow
22 the dictates of Rule 26(a), which would include expert reports.
23 So if they had served an expert report late, then there could
24 have been a Rule 37 motion. They didn't serve the expert
02:19 25 report late. The problem is the expert report relies on a

1 theory that they never disclosed under 16.6, Local Rule 16.6.

2 And unless Your Honor has further questions, that's
3 all I have.

4 THE COURT: Okay. Who's taking the lead for Singular?

02:19 5 MR. SEEVE: I am, Your Honor. Good afternoon.

6 So first I'll address Singular -- or Google's core
7 argument, which is that Dr. Khatri's report puts forth a new
8 theory of infringement, which is not the case.

9 In particular, Google is arguing here that, first,
02:19 10 Google had no way of knowing before Dr. Khatri's report that
11 Singular was pointing to rounding circuits as being part of its
12 infringement theory, and that's not the case.

13 And secondly, Google is saying that even if it knew
14 about the rounding circuits, it still didn't know where these
02:20 15 rounding circuits were, and in particular, it didn't know that
16 the rounding circuits were within what's called the VPU as
17 opposed to the MXU, and that's not the case.

18 And if you take a look at Singular's demonstratives --
19 it's slide 2 -- you can see that Singular's theory has actually
02:20 20 remained the same from the very beginning, from the very start
21 of the case. This slide shows a snippet from Singular's
22 preliminary infringement contentions, and as you can see
23 highlighted here on this slide, the snippets contained here
24 show that the LPHDR EU under Singular's infringement theory --
02:20 25 and here "EU" stands for execution unit. So that's LPHDR

1 execution unit. Singular's LPHDR execution unit took 32-bit
2 inputs, and then it reduced the precision of those inputs using
3 a rounding circuit potentially, although this was before fact
4 discovery. And as Your Honor pointed out, there was no way
02:20 5 Singular had of knowing exactly what circuitry was involved.
6 And then it took those reduced precision inputs and it
7 multiplied them together with the MXU. And the circuitry
8 responsible for that process is what Singular has identified
9 since the very start of the case as being the LPHDR execution
02:21 10 unit.

11 Now, as Your Honor pointed out, without the benefit of
12 source code, it's impossible to know exactly what circuits
13 within this very complicated chip perform the claimed
14 functions. And so during fact discovery, Singular and
02:21 15 Singular's expert, Dr. Khatri, reviewed Google source code, and
16 in August of 2022, which is only 22 days after Singular
17 received the source code finally from Google that it requested,
18 pursuant to its request for source code for its updated
19 infringement contentions, Singular amended its infringement
02:21 20 contentions to include citations to the specific source code
21 that identifies and corresponds to the specific circuits that
22 it used as part of its infringement theory.

23 And on slide 3 of Singular's demonstratives, you can
24 see an excerpt from one of these source code files. Now, this
02:22 25 source code file was cited specifically with respect to the

1 LPHDR execution unit claim limitation. And as Your Honor can
2 see, it very clearly shows not only that this circuit performs
3 rounding, but also that this circuit is located within the VPU.
4 The file name is VpuToMxuFloatConversion, referring to, as the
02:22 5 source code explains, conversion from a format that's used by
6 the VPU to a format that's used by the MXU. And how does this
7 conversion takes place? Well, it takes place via rounding, as
8 Your Honor can further see in another excerpt that's
9 highlighted on this slide.

02:22 10 So as far as Singular is concerned, the inquiry should
11 end there. These amended contentions were timely filed. The
12 Court ruled that Singular had leave to amended its contentions
13 in August of 2022 when it amended its contentions to add this
14 source code file. And as Your Honor can see, it very clearly
02:23 15 identifies not only the very same rounding circuit that
16 Dr. Khatri points to in his report, and there's no dispute that
17 it's the same rounding circuit, but it also shows that that
18 rounding circuit is located within the VPU.

19 Now, Google's argument is sort of attempting to
02:23 20 pretend that these contentions never actually were amended.
21 Google is first saying that, oh, yes, it's true that Singular
22 amended its contentions, but it only added this source code as
23 one of several source code files that were cited as part of
24 this limitation. Well, that's true. There are a number of
02:23 25 source code files that are related to this very complicated

1 claim limitation. But there's also no question that this
2 rounder was singled out. This rounder was singled out and its
3 location within the VPU by Singular six months before
4 Dr. Khatri's report was served as part of the LPHDR execution
02:23 5 unit that was identified by Singular as the infringing
6 instrumentality.

7 Now, Google said in its briefs, and Mr. Kwun just said
8 in his argument, that Google was totally blind-sided by this
9 argument when it appeared for the first time in Dr. Khatri's
02:24 10 report. Well, that's not true, and we can see that from the
11 invalidity reports that Google itself filed on the same day
12 that Dr. Khatri's report was served. And if you look at slide
13 4 of Singular's demonstratives, you can see, for example,
14 Google's invalidity expert, Dr. Leeser, is talking about a
02:24 15 prior art system called bfloat, and she identifies purportedly
16 an LPHDR execution unit that she says is located within the
17 bfloat reference. And one of the components of that supposed
18 LPHDR execution unit, as you can see from the excerpt here, is
19 a rounding and normalization circuit that performs a rounding
02:24 20 operation. And it's not just Dr. Leeser that talks about
21 rounding and rounders as related to the LPHDR execution unit,
22 but it's also Google's other invalidity expert, Dr. Gustafson.

23 And on slide 5 of Singular's demonstratives, you can
24 see a figure from Dr. Gustafson's invalidity report that
02:25 25 purports to show another LPHDR execution unit supposedly within

1 the prior art. And at the bottom of this figure, there's a
2 block that's highlighted in yellow called RND underscore norm.
3 And what does that block do? Well, you can see from the quote
4 on the slide that it performs rounding, and these aren't the
02:25 5 only references to rounding within Google's invalidity reports.

6 If you look at slide 6 of Google's demonstratives --
7 am I getting it right? Yes, slide 6 -- you can actually see an
8 excerpt from Dr. Gustafson's table of contents where he devotes
9 actually 20 pages of his report to rounders and rounding and
02:25 10 how they're relevant to the LPHDR execution units that are
11 claimed in this case. If Google truly were blind-sided by
12 Dr. Khatri's argument, if it truly had no idea how rounders
13 related to the arguments at issue, it would not have devoted
14 such a substantial amount of its validity reports, which were
02:26 15 served the same day that Dr. Khatri's report was served, to
16 rounding and how it relates to the asserted claims.

17 Now, when it comes to this argument that, oh, it's in
18 the VPU as opposed to the MXU, Your Honor's question I think
19 really gets to the heart of the matter, which is why does it
02:26 20 matter where this rounding circuit is located. The fact is, it
21 doesn't. Not only do Google's contentions very clearly explain
22 that the rounding circuit is located within the VPU -- that's
23 what the source code on slide 3 shows -- but also it's not
24 actually part of Singular's theory at all.

02:26 25 Mr. Kwun referred to the fact that Singular's initial

1 contentions placed the rounder in the MXU rather than the VPU,
2 not as a result of Singular being wrong but as a result of
3 Google's documentation being wrong. Now, I could explain all
4 the details and I could go down that rabbit hole, but
02:26 5 fundamentally, what's at issue here is it simply doesn't matter
6 where the rounding circuit is located. The VPU and the MXU are
7 both terms that Google has invented, Google has used internally
8 to refer to different regions of what is fundamentally the same
9 device, a single chip.

02:27 10 It doesn't matter whether a particular rounding
11 circuit is located in the VPU or the MXU. This is an arbitrary
12 distinction. What matters is what the rounding circuit does
13 and whether it performs the functionality that constitutes
14 infringement in this case. There's no dispute that it performs
02:27 15 the functionality identified by Dr. Khatri.

16 Now, when it comes to the legal standard at issue in
17 this case, I just have a couple of points to make. Mr. Kwun
18 first pointed out a whole bunch of cases about timely
19 disclosures and whether Singular should be allowed to amend.
02:27 20 The question of whether Singular should be allowed to amend has
21 already been litigated in this case. Google objected when
22 Singular asked for leave to supplement its infringement
23 contentions. And the Court rejected Google's arguments, and it
24 granted Singular leave to amend. The Court found that Singular
02:28 25 was timely, the Court found that Singular was diligent, and the

1 Court found that Singular was not seeking to add a new theory.

2 Now, Google is attempting to pretend that Singular's
3 amendments never happened or, in the alternative, it's trying
4 to say that Singular's amendments to its contentions never
02:28 5 should have been allowed in the first place, but that issue has
6 already been decided. That's not the issue that's before the
7 Court now.

8 When it comes to the question of Rule 16 versus Rule
9 37 and what standard should apply, I should point to the fact
02:28 10 that Google is essentially attempting to do an end run around
11 the summary judgment standard. This is fundamentally a summary
12 judgment motion, and it's not just me saying this. Google in
13 one of its summary judgment motions actually tells the Court
14 that if the Court grants this motion, then summary judgment of
02:28 15 noninfringement would be warranted.

16 So there's no question what Google here is trying to
17 achieve. Google here is effectively trying to get summary
18 judgment, but it doesn't actually want to use the summary
19 judgment standard to prove it. And this is actually consistent
02:29 20 with Google's tactics in the remainder of this litigation.
21 This motion that's before the Court right now is one of three
22 motions that are currently pending in which Google is
23 attempting to get the entire expert report of Dr. Khatri tossed
24 out on legal or procedural grounds without even getting to the
02:29 25 facts or to the merits, and for the same reason as the other

1 two motions, should be denied, the instant motion should also
2 be denied for the reasons I just explained.

3 THE COURT: Okay. Mr. Kwun, any response?

4 MR. KWUN: Yes, Your Honor. Just a few points.

02:29 5 First of all, I just wanted to mention that this is a
6 patent claiming a device. It claimed the actual structural
7 elements of a device. And the notion that they should just be
8 able to say somewhere in your TPU you can find all of these
9 elements would make a mockery of the patent rules and the
02:30 10 requirement of their disclosures. If all they had to do is say
11 that it's somewhere in the TPU and the exact location doesn't
12 matter, then there's no need for any preliminary disclosures at
13 all. They could just say it's in the TPU, and that would be
14 enough. So it's not enough because we need to know what their
02:30 15 actual theory is.

16 Second of all, our invalidity experts relied on
17 rounding in prior art systems that invalidate the asserted
18 claims. That means that we knew that our theory for those
19 pieces of prior art involved rounding circuits. What we didn't
02:30 20 know was that their theory for infringement based on our
21 systems involved the rounding circuits in the VPU.

22 And according to Mr. Seeve, the disclosures said, oh,
23 you know, there's a rounding circuit and now you're just
24 complaining that the rounding circuit was somewhere else. If
02:30 25 you look at the disclosures, they actually don't say that

1 there's a rounding circuit. They say that the multipliers
2 operate at reduced bfloat 16 precision. They say that the
3 inputs are at FP32. They are entirely silent about what
4 happened in between, whether it's rounding, whether it's a
02:31 5 mathematical operation that produces FP -- or excuse me, a BF16
6 by some other means, whether it's truncation, whether it's
7 something else. So they never even disclosed that it was a
8 rounding circuit, let alone where that rounding circuit was.

9 And, Your Honor, I would like to make two other points
02:31 10 from our slides. So, first of all, our sixth slide comes from,
11 again, from the infringement contentions at 410-3 on the
12 docket, and now it's at page 10. And in their infringement
13 contentions, both their preliminary contentions and their
14 post-amendment infringement contentions, for the '156 patent
02:31 15 when they had to identify at least one competing device adapted
16 to control the LPHDR execution units, one of the things they
17 identified as controlling the execution unit was the VPU.

18 So if they're saying that they amended their
19 contentions and it was clear in their contentions that the VPU
02:32 20 was part of the EU, it would make no sense that they left their
21 contentions about the competing device adapted to control still
22 saying, oh, by the way, the VPU controls the EU. That would
23 make the VPU part of the EU while it simultaneously is outside
24 of it controlling the VPU. That makes no sense whatsoever, and
02:32 25 that I think shows that their theory is incorrect.

1 And then the last one I want to point out is from
2 Dr. Khatri's expert report. At paragraph 162 of Dr. Khatri's
3 expert report he says something very interesting. He says that
4 the BF16 multiplication that takes place in the MXU occurs, and
02:33 5 then I'm quoting, quote, "without further loss of precision,"
6 unquote. So he is saying what we said in our noninfringement
7 contentions a couple of years ago, which is that the
8 multipliers in the MXU perform exact math. So if your patent
9 is about math that is inexact, that's going to be a problem.

02:33 10 So this is why they need to assert a different theory
11 than an MXU-only theory for the execution unit. And that's why
12 the theory that places part of it in the VPU is a different
13 theory than the one that was disclosed to us.

14 Thank you, Your Honor.

02:33 15 THE COURT: All right. Last word, Mr. Seeve?

16 MR. SEEVE: So just a couple of extremely brief points
17 in response to what Mr. Kwun just said.

18 First of all, Mr. Kwun's assertion that we never
19 pointed to a rounding circuit at all, let alone where it was
02:33 20 located, once again, he's arguing in this universe where we
21 never amended our contentions, but we did amend our
22 contentions. And we very clearly identified not only a
23 rounding circuit but the very particular rounding circuit
24 located within the VPU that performs the claims functionality.
02:34 25 So that's point one.

1 Point two, relating to this argument about the
2 controlling circuit, et cetera, I really don't want to go down
3 the rabbit hole of the merits of the infringement argument.
4 That's something that can be decided by the jury, and I'm not
02:34 5 sure sort of where the noninfringement argument starts and
6 where Google's argument on the present motion ends, but I will
7 merely say that Google's argument about this controller is
8 inaccurate. Google is ignoring certain key disclosures in our
9 infringement contentions that clearly point to the core
02:34 10 sequencer as being the thing that controls the LPHDR execution
11 units.

12 I'll also mention that the VPU is not just one thing,
13 it's not just the rounding circuits. The VPU is this large
14 region of the chip that includes not just rounding circuits but
02:34 15 a whole bunch of other circuitry as well.

16 But the idea that the VPU might be partially
17 responsible for controlling the LPHDR execution units that
18 include the rounder that are also in the VPU is not nonsensical
19 as Mr. Kwun would have the Court believe.

02:35 20 So those are just the two points I would like to make
21 in sort of a final argument against what Mr. Kwun is saying.
22 Our argument was fully disclosed. It's not a new theory. It
23 was merely supplemented in our supplemental contentions, and
24 it's identical to the theory that Dr. Khatri used six months
02:35 25 later in his expert report.

1 Thank you, Your Honor.

2 THE COURT: All right. Thank you. All right. In
3 light of where we are in the case, I'm going to rule now from
4 the bench rather than writing an opinion. There's always a
02:35 5 danger I'm going to misspeak or get something wrong or use a
6 shorthand phrase when I mean something more precise, but I
7 think it's important to resolve this issue.

8 So I'm going to deny the motion to strike. My
9 understanding is that since this litigation began, Singular has
02:36 10 advanced an infringement theory that there were two components
11 or pieces or functions here, a rounding or precision-reducing
12 circuit and a multiplier. As I understand it, Singular
13 apparently believed at the outset based on publicly available
14 information that the precision-reducing circuit was in the MXU.
02:36 15 It said it did that based on publicly available Google
16 documents which it says were incorrect.

17 In any event, that proved to be not quite accurate,
18 and at some point Singular says it's after the production of
19 the source code that Google says it was the source code plus
02:37 20 depositions of engineers, but in any event, at some point, and
21 about three weeks or so after the source code was produced,
22 Singular supplemented its contentions. I don't think it much
23 matters in terms of whether that was deemed an amendment or a
24 supplementation. In any event, it occurred. And the
02:37 25 supplemental contentions make clear that the precision-reducing

1 or rounding circuit is in the VPU.

2 I am struggling to see, and I'm not convinced that
3 this distinction is material, that is, where the rounding
4 function occurs geographically on the chip. I think the
02:37 5 critical issue is whether the device infringes by using a
6 precision-reducing circuit and a multiplier, which taken as a
7 whole, represent an LPHDR execution unit, and the devices
8 that -- the accused device is the Google TPU.

9 But in any event, I see no violation or material
02:38 10 violation of the Court's order or the local rules concerning
11 disclosure of infringement contentions, much less a violation
12 serious enough to warrant preclusion, which is an
13 extraordinarily serious response.

14 And I agree with the proposition that this is not a
02:38 15 Rule 37 discovery issue. It's really a Rule 16 issue, speaking
16 broadly. That is the Court's orders concerning disclosures and
17 the applicable local rules.

18 To the extent that there were any imperfections or
19 delays in all of this, it seems to me that they are minor. I
02:39 20 certainly see no material prejudice. Google has had the
21 supplemental contentions available to it for about a year or
22 so. It's had the expert report of Dr. Khatri since last
23 December. It's now May. Trial is not until September. I
24 believe that Google has had ample time to respond under the
02:39 25 circumstances, and I need not now decide anything broader than

1 the narrow issue of whether I strike the expert report on these
2 grounds.

3 I certainly do not need to decide noninfringement or,
4 you know, to what extent Google can or cannot make certain
02:39 5 arguments at trial. That, if anything, will be left for
6 another day. So to eat what is on my plate, metaphorically
7 speaking, I'm going to deny the motion to strike, which is
8 docket entry number 408.

9 While we are together, and changing subjects, there
02:40 10 have been a plethora, perhaps more than one plethora, of
11 motions to seal, which I have not looked at. I will -- I think
12 they are all agreed upon, and I will look at them. As a
13 general proposition, I think Courts have gotten into a habit of
14 oversealing things, particularly in business disputes. And
02:40 15 since I haven't even read these, I'm only expressing sort of
16 broad-based reactions here, but one outcome, because it's a
17 common outcome, is for me to grant it provisionally subject to
18 targeted redactions, and I'll just look and see what you did,
19 but I will clean that up before too much time passes.

02:41 20 In other words, I'm constantly being asked to seal
21 things where people are asking me to seal a 20-page -- 25-page
22 document based on about three pages of confidential information
23 and which is inappropriate.

24 And otherwise, I think -- we have a number of
02:41 25 substantive motions pending. Are they all ripe? It looks like

1 perhaps --

2 MR. VAN NEST: Your Honor, could I address that?

3 THE COURT: Yes, Mr. Van Nest.

4 MR. VAN NEST: Thank you for raising that. Yes, by
02:42 5 next Friday, by a week from Friday, the Dauberts and the
6 summary judgment motions will all have been fully briefed. The
7 replies are due a week from this Friday. So I was going to ask
8 or suggest that if Your Honor is contemplating a hearing on
9 those motions, which --

02:42 10 THE COURT: Yes.

11 MR. VAN NEST: -- I think the parties have requested,
12 that while we're all together today, we could perhaps choose a
13 date.

14 THE COURT: Yes. Let's do that in about three weeks
02:42 15 or thereabouts. Matt, what do I have?

16 THE CLERK: Would Friday, June 16th at 2:00 o'clock
17 work?

18 THE COURT: Why don't we make that 1:30 just because
19 it's a Friday before a summer weekend. We may have a lot of
02:43 20 ground to cover. 1:30 Eastern Time.

21 MR. VAN NEST: Your Honor, I'm in a jury trial in San
22 Francisco that starts on the 12th, and it's expected to run for
23 a couple of weeks.

24 THE COURT: I may be out the following week. Is that
02:43 25 right, Matt, am I?

1 THE CLERK: That's correct, Judge.

2 THE COURT: Can someone else from your office cover,
3 Mr. Van Nest? They seem smart to me. I think they could
4 probably handle this.

02:43 5 MR. VAN NEST: I would really -- on the summary -- I
6 assume that we're talking about the substantive motions, the
7 summary judgment --

8 THE COURT: Yes.

9 MR. VAN NEST: -- and Daubert? I would really prefer
02:43 10 to do that myself, at least on one of them.

11 THE COURT: All right. Let's look at the end of June
12 then. I'm not quite sure how much is involved, and I'm
13 prepared to issue rulings rapidly, as I did today, to keep this
14 on track, and if I need to do that, I will. Am I on the last
02:44 15 week of June; is that right, Matt?

16 THE CLERK: Yes, you are, Judge.

17 How about Tuesday, June 27th at 1:30?

18 MR. VAN NEST: I think that would work for me, Your
19 Honor, Tuesday, the 27th.

02:44 20 THE COURT: Okay.

21 MR. SEEVE: And I think that works for us, Your Honor.
22 Anyone else on my team who's on the call object if that's not
23 the case, but I'm nearly certain that will work for us.

24 THE COURT: Okay. Okay. And I think that the
02:44 25 motions -- the pending motions, other than the motions to seal,

1 there's a motion to continue the trial, 453; motion for summary
2 judgment of noninfringement, 460; motion for partial summary
3 judgment of no invalidity based on CNAPS and GRAPE-3, 464;
4 motion to exclude testimony of Laura Stamm and Martin Walker
02:45 5 regarding reasonable royalty, 466; motion for summary judgment
6 concerning patent ineligibility, 467; 471 is a motion to
7 exclude opinion testimony of Dr. Gustafson; 474 is a motion, a
8 partial summary judgment of no invalidity under Section 101;
9 475 is to exclude certain documents and testimony of Dr. Leeser
02:45 10 due to IPR estoppel; 476 is to exclude certain opinion
11 testimony of Philip Green; and 479 is to exclude certain expert
12 testimony of Dr. Khatri. I think that is it. That's quite a
13 handful.

14 I don't know -- well, let's leave it this way: Unless
02:46 15 you hear otherwise from me, why don't you be prepared to
16 discuss all of those, but I may -- I may not have a hearing on
17 all of them to save time. Some of these are going to be more
18 important than others and -- or be prepared to do an expedited
19 discussion on some of them. I read them all so.

02:46 20 Mr. Van Nest?

21 MR. VAN NEST: I'm assuming on the 27th we'll be live?
22 Or are you contemplating a virtual hearing or are you
23 contemplating a hearing live in Court?

24 THE COURT: Well, I can do either one. You all are
02:46 25 the ones from California.

1 MR. VAN NEST: I think we'd prefer to be live.

2 THE COURT: It's fine with me.

3 MR. SEEVE: It's fine with us, too, Your Honor.

4 THE COURT: All right. Live it is.

02:47 5 MR. VAN NEST: Okay. The only other thing I was going
6 to mention is that the -- and I -- we're not requesting a
7 hearing on it, but you mentioned the motion to continue.
8 That's -- all I was going to say about that is it's fully
9 briefed, and if you wanted to hear something, we could do it on
02:47 10 the 27th or you could decide it on what we filed. I don't
11 think there's much to add to what is in the papers, but the
12 reply briefs are in.

13 THE COURT: Okay.

14 MR. VAN NEST: And it's fully briefed.

02:47 15 THE COURT: All right. I will take a look at that.
16 And I -- to grossly underestimate things, I have quite a bit on my
17 plate, and some of these rulings are going to be more expedited
18 than perfect, I guess let's put it that way, because I want to
19 hold this trial date and make sure -- I don't want to be
02:47 20 making, you know, significant rulings on the Friday before a
21 Monday trial.

22 Obviously I want to make sure you all know what this
23 thing is going to look like, assuming we get that far. But
24 obviously if I continue the trial, that relieves that
02:48 25 particular pressure. That's just going to be the way it is,

1 okay?

2 MR. VAN NEST: Okay. We didn't have anything else for
3 today, Your Honor, unless Your Honor has further questions.

4 THE COURT: No, I don't think so.

02:48 5 Mr. Seeve, anything from your end?

6 MR. SEEVE: Nothing further, Your Honor.

7 THE COURT: Okay. Thank you.

8 MR. VAN NEST: Thank you, Your Honor. Appreciate your
9 time.

02:48 10 MR. SEEVE: Thank you, Your Honor.

11 (Adjourned at 2:48 p.m.)

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1 CERTIFICATE OF OFFICIAL REPORTER
23 I, Linda Walsh, Registered Professional Reporter
4 and Certified Realtime Reporter, in and for the United States
5 District Court for the District of Massachusetts, do hereby
6 certify that the foregoing transcript is a true and correct
7 transcript of the stenographically reported proceedings held in
8 the above-entitled matter, to the best of my skill and ability.

9 Dated this 28th day of May, 2023.

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11
12 /s/ Linda Walsh13 Linda Walsh, RPR, CRR
14 Official Court Reporter
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